Catalogue

MAC-D-2011 (50Hz)

MAC-D R410A Series Air-cooled Modular Chiller/Heat pump

Model:	MAC210D5-MAC1680D5
	MAC230D5-MAC1840D5
	MAC210DR5-MAC1680DR5
	MAC230DR5-MAC1840DR5
Refrigerant:	R410A
Cooling Capacity:	57kW-520kW
Heating Capacity:	60kW-520kW

R410A ECOLOGIC AND HIGH EFFICIENCY

McQuay® Air Conditioning

Overview

Based on the successful McQuay air-cooled modular chiller/heat pump R22 series, McQuay MAC-D R410A series is a new generation of air-cooled chillers/heat pumps. They ideally combine the advanced and mature chiller technology with new type environment-friendly refrigerant. In addition, this series features outstanding performance, high capacity, low sound level, easy installation, and flexible system management, taking the lead in the global market.

ISO 9001
Certificate No. : 9601019
Quality Management System Certification

ISO 14001
Certificate No. : EMS 80362
Environment Management System Certification

BS - OHSAS 18001
Certificate No. : 7644

Test
CNAS L0778
The test center is certified by China National Accreditation Service for Conformity Assessment

XK06-015-00378
China National Industrial Product Manufacture License

Nomenclature

MAC 210 D R M 5 - F AA E

- E: Export sales code
- AA: Detailed description
- F: Power supply
  F: 380V/3Ph/50Hz;
- 5: Refrigerant code
  5: R410A
- M: Code for parallel connected units
  M: master unit/single unit;
  S: slave unit;
- R: Function type
  R: heat pump;
  Omitted for cooling-only units.
- D: Design series
- 210: Cooling capacity code, 21HP.
- MAC: McQuay air-cooled modular chiller

European Manufacturing Base of McQuay Air-cooled Heat Pump in Cecchina Italy

McQuay Air Conditioning (Shenzhen) Co., Ltd. of McQuay China
Asian Manufacturing Base of McQuay Air-cooled Heat Pump

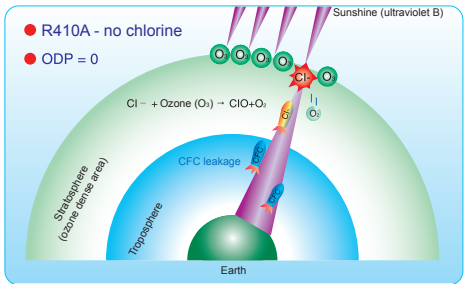
McQuay Aubum Factory, USA

McQuay Cecchina Factory, Italy

Main Features

Environment-friendly Refrigerant

McQuay is committed to protecting the global ecosystem and has developed air-cooled chiller/heat pump with R410A, a new type of environment-friendly refrigerant. Without chlorine, the environment-friendly R410A causes no harm to the ozonosphere (ODP=0).



Low sound level

Thanks to the newly designed spiral blades, the outdoor units feature smooth air flow, significantly reducing the turbulence and lowering the air flow sound level. Unique compressor sound-insulation design and fully hermetic volute compressor minimizes the operation noise. Moreover, unique Night Mode brings down nightly noise greatly and ensures you a sound sleep.

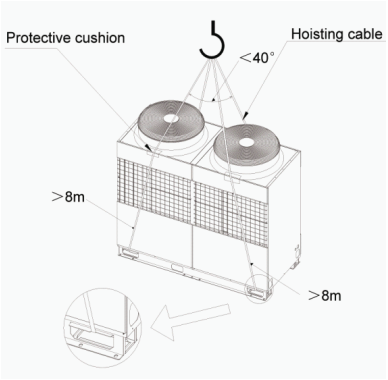
New type spiral blade

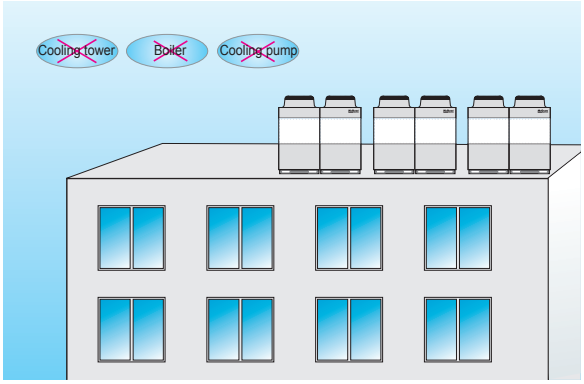
Semi-M shaped heat exchanger

Isolation-designed compressor

Easy Installation

MAC R410 series is designed to best facilitate user installation. The refrigerant system is made hermetic in the factory. Customers do not need to connect any copper pipe or refill refrigerant or invest more money for complex water systems.





Main Features

Multi-grade Modulation

MAC R410 series features 2-grade modulation which can be transformed to multi-grade modulations in modular combinations. With operation grades controlled electronically, the unit exerts less shock to the power grid and saves more energy.

Compact Size

Moreover, MAC R410 series features compact size. Its dimensions and weight are significantly reduced. MAC R410 can be lifted without large lifting tools and located on the roof, balcony or any possible outdoor space.

Reliable Operation

MAC R410 series adapts modular design and one by one start, reducing the impact upon the grid when starting. All units have undergone strict and long-term test, ensuring reliable operation even under extreme hot/cold conditions. Units themselves, moreover, have multiple protections. The security of units is maximally guaranteed.

Outstanding Performance

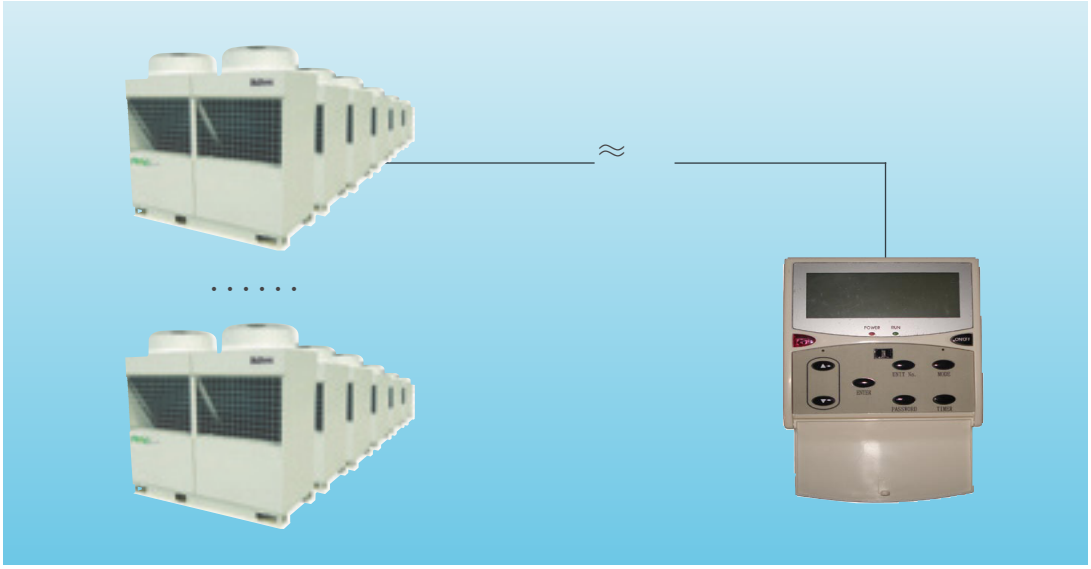
MAC R410 series features leading-edge scroll technology and name-brand accessories which are strictly tested for high compatibility and reliability. Equipped with efficient scroll compressors and precise electronic expansion valves, these units feature high EER and COP, especially at partial load.

Control

Intelligent Control System

MAC-D features user-friendly intelligent control system. Micro chip and large-scaled LCD display are employed to make the control swift and easy.

- Group control: One single controller can control a group made up by one master unit and maximum 15 slave units.
- BMS: MAC-D provides interfaces for BMS. One serial port can support maximum 31 gateway and one gateway can support one master unit and maximum 15 slave units.



Basic Operating Mode

- Cooling
- Heating

Parameter Setting

- Real time setting
- Weekly timing on/off (one on/off per day)
- Cooling water inlet temperature
- Heating water inlet temperature
- Anti-freezing/defrost temperature setting
- Defrost point A/B temperature setting

Parameter Display

- Running status display
- Setted inlet water temperature
- Actual inlet water temperature
- Timing point
- Anti-freezing/defrost temperature

Fault alarm and protection

- 13 protections and fault alam functions
- Indoor controller lock

Defrost Mode

- Auto defrost
- Mannual defrost

Memory function

- Backup battery for realtime clock
- Customized parameters preservation after power failure

Other functions

- Error log inquiry
- Average compressor worn time
- Remote on/off
- Water system two-way valve control
- Auxiliary electric heating

Note:

- The length of communication wire between the master unit and the wired controller is 40m. The length of communication wire attached to the slave unit is 5m.
- The main board of the unit provides an interface for remote control. But remote controllers are not provided and should be installed on site.

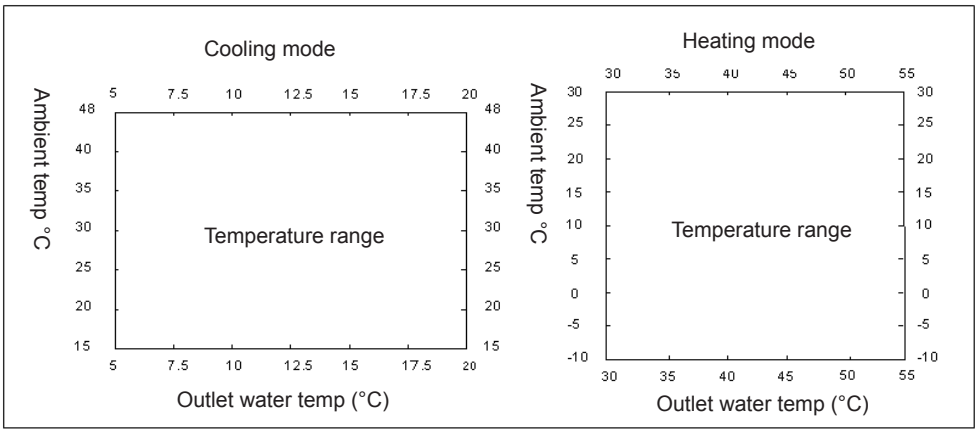
Specification

Model			MAC210D5	MAC210DR5	MAC230D5	MAC230DR5
Nominal cooling capacity		kW	60	57	65	61.7
		MBtu/h	205	195	222	211
Nominal heating capacity		kW	--	60	--	65
		MBtu/h	--	205	--	222
Cooling input power		kW	18.8	19.1	19.2	20.7
Cooling operation current		A	35.5	36	36.9	37.2
Heating input power		kW	--	20.1	--	21.8
Heating operation current		A	--	37.2	--	38.2
Power supply			380V/3Ph/50Hz			
EER		Btu\h\W	10.9	10.2	11.5	10.2
COP			--	3	--	3
Compressor	Type		Hermetic scroll compressor			
	Quantity	Unit	2			
Fan	Type		New type axial fan			
	Quantity	Unit	2			
	H/L power input	kW	1.15x2 / 0.75x2			
Heat exchanger	Type		High efficiency BPHE			
	Water flow (cooling)	m^3/h	10.3	9.8	11.2	10.6
		l/s	2.86	2.72	3.11	2.94
		gpm	45.4	43.2	49.3	46.7
	Water flow (heating)	m^3/h	--	10.3	--	11.2
		l/s	--	2.86	--	3.11
		gpm	--	45.4	--	49.3
Unit WPD		kPa	38		47.5	
Water pipe connection size			≥DN50			
			2"			
Unit dimensions	(Length×Width×Height)	mm	1990×840×1840			
		inch	78.3×33.1×72.4			
Packing dimensions	(Length×Width×Height)	mm	2010×890×2010			
		inch	79.1×35×79.1			
Unit weight		kg	520	540	520	540
		lb	1146	1190	1146	1190

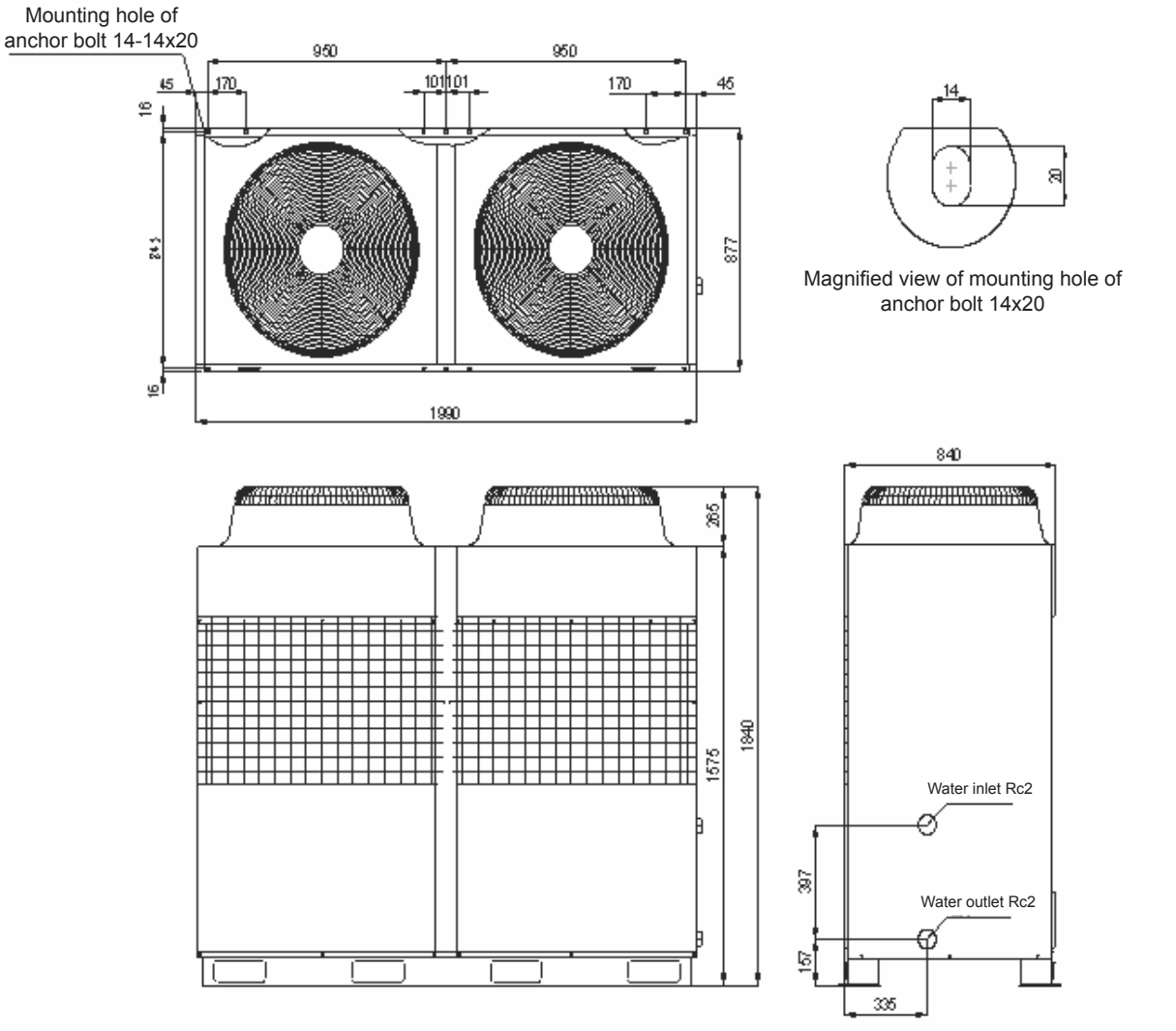
Note:

- Working conditions for nominal cooling capacity: rated water flow; leaving water temperature 7°C; outdoor ambient temperature 35°C.
- Working conditions for nominal heating capacity: rated water flow; leaving water temperature 45°C; outdoor dry/web bulb temperature 7°C/6°C.
- Water resistance includes water pressure drop of the unit and the attached Y-shaped filter;
- Running weight of the unit is about 1.05~1.1 times of its net weight.
- The water pipe connecting units is installed on site but not provided by the factory. The diameter of the connecting pipes should meet certain standards.
- The recommended number of connected units is 8. If you want to connect more than 8 units, please contact Shenzhen McQuay for support.
- Specifications are subject to change due to design variations without further notice.

Operating Limit

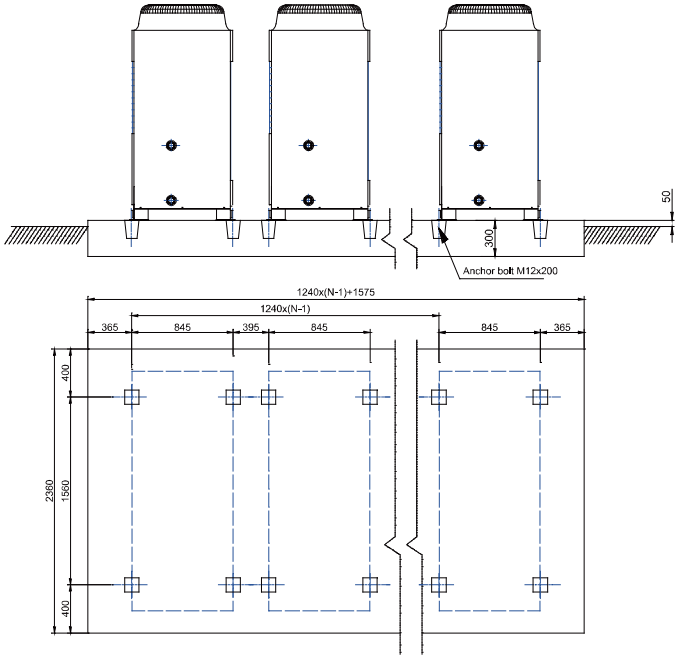


Dimensions



Unit: mm

Installation Illustration

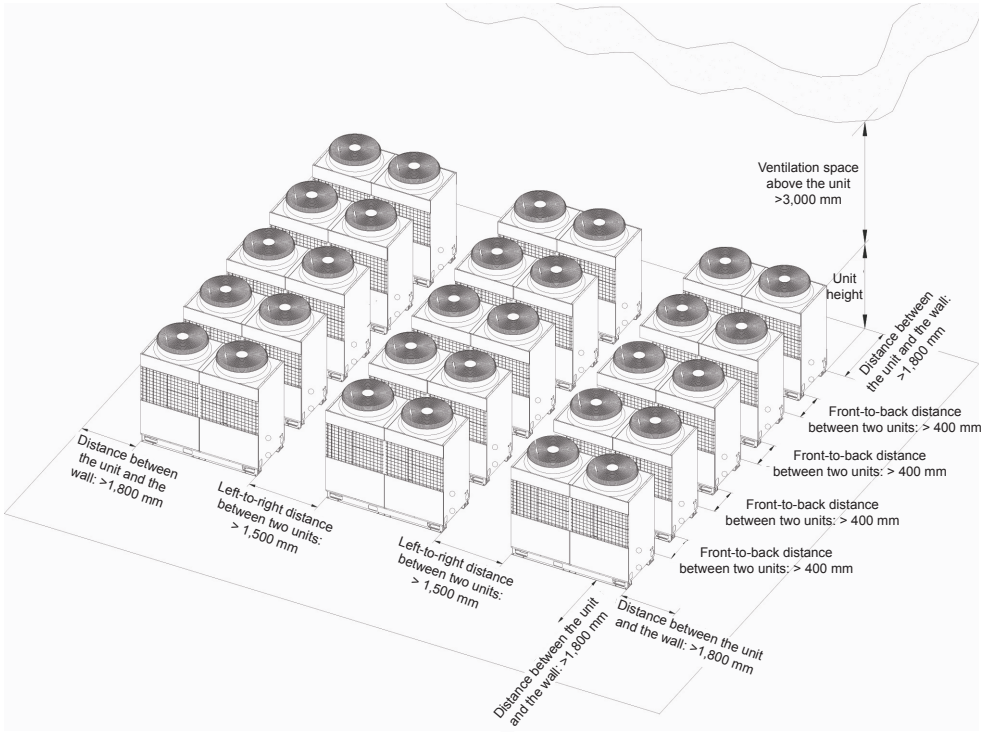


Note:

1. The groundwork should be concrete or V-iron structures, and must be strong enough to bear the operating weight of the unit.
2. Each unit must be fixed by four M12 bolts.
3. A 20mm-thick rubber cushion should be added to the base as a bumper.
4. Applicable model: MAC210DM5/MAC210DS5/ MAC210DRM5/MAC210DRS5/MAC230DM5/ MAC230DS5/MAC230DRM5/MAC230DRS5

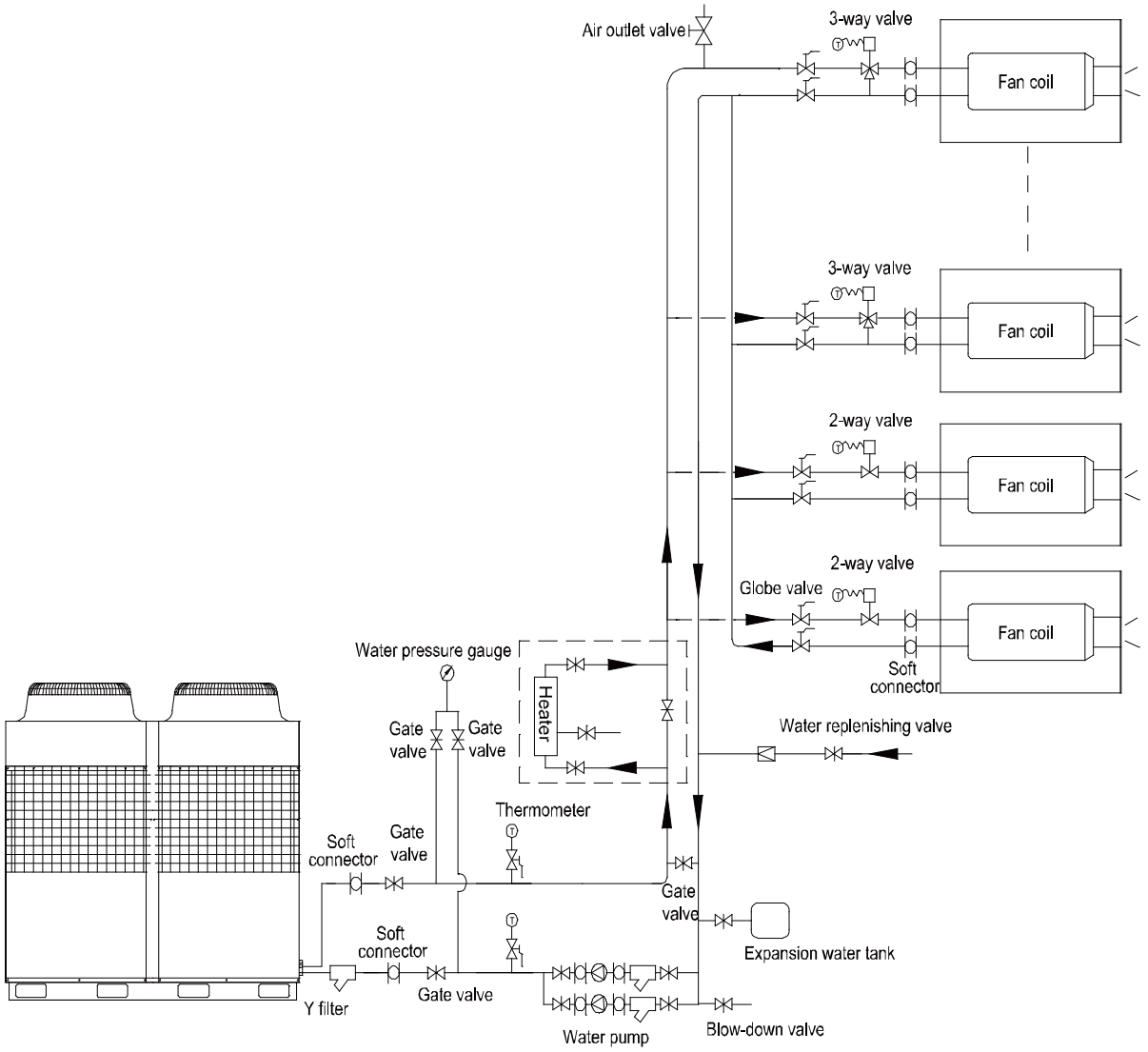
Unit: mm

Installation Space


Ventilation space above the unit >3,000 mm
Unit height
Distance between the unit and the wall: >1,800 mm
Front-to-back distance between two units: > 400 mm
Front-to-back distance between two units: > 400 mm
Front-to-back distance between two units: > 400 mm
Front-to-back distance between two units: > 400 mm
Distance between the unit and the wall: >1,800 mm
Left-to-right distance between two units: > 1,500 mm
Left-to-right distance between two units: > 1,500 mm
Distance between the unit and the wall: >1,800 mm
Distance between the unit and the wall: >1,800 mm

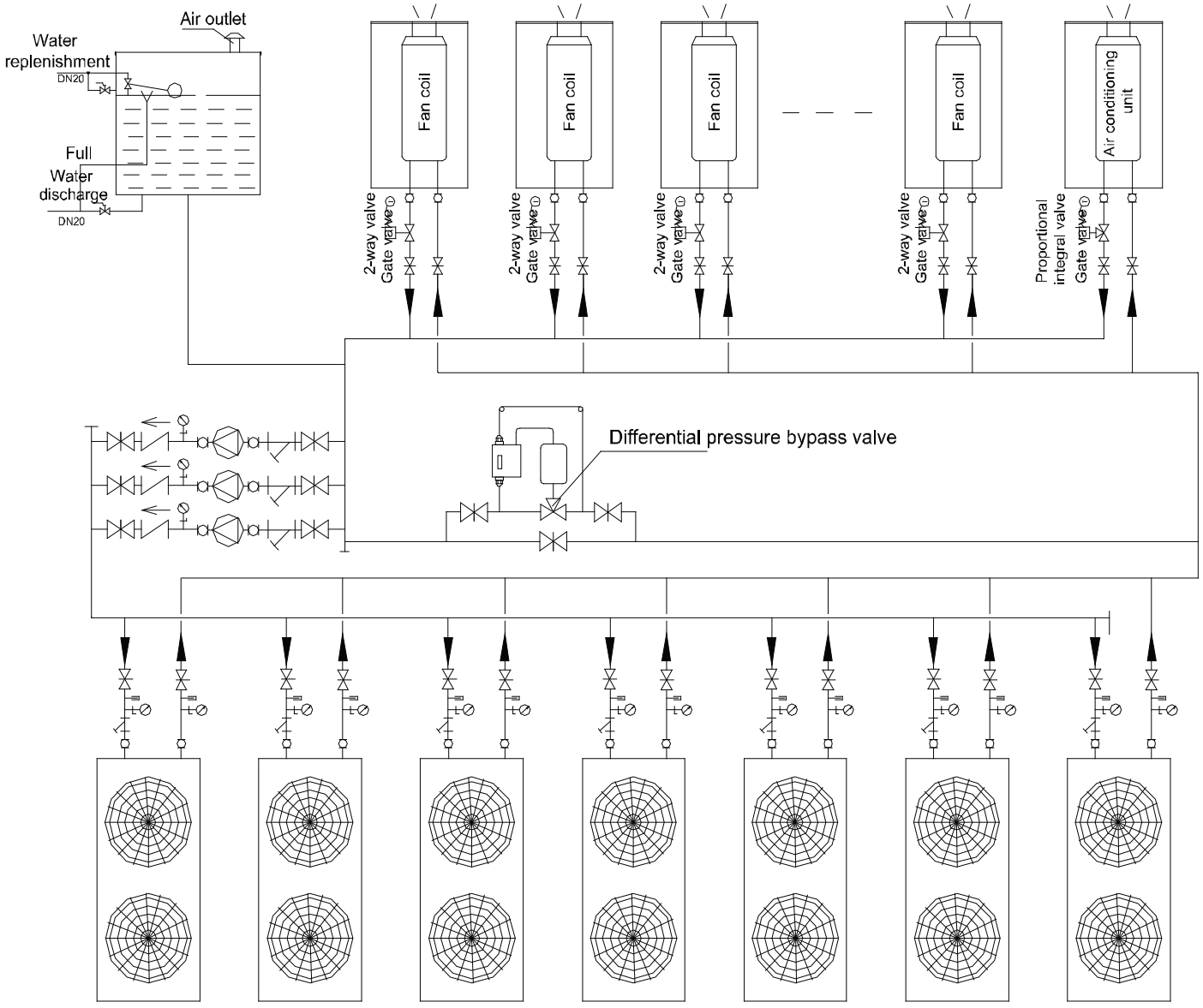
Unit: mm

Water System



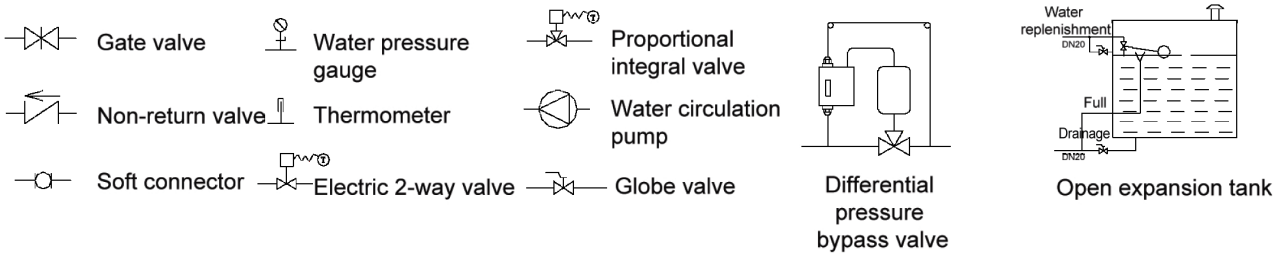
Unit: mm

Water System



Unit: mm

Legends for the Water System Illustration:



Requirements on Water Supply

- Circulatory water must be softened.
- A relief valve must be installed for the water supply system.
- Water flow must not be lower than rated.
- An air outlet valve must be installed at the highest point in the water system.
- A suitable water discharge valve must be installed at the lowest point in the water system.
- It is recommended that an adiabatic tank with a proper volume be installed to avoid frequent startup in the case of low workload.
- An expansion water tank must be installed to accommodate water volume variations due to thermal expansion and contraction.
- A bypass must be installed for the water circuit. The water system must be fully cleaned before water infusion and system startup.
- Please replace the attached water filter after cleaning the system and pilot run.
- It is recommended that customers check the water system twice a month.

Water Quality Requirements	
Item	**Requirement**
pH	Between 7 and 9
Suspended matter	Suspended material concentration <15mg / l
DH	CaO content <200mg / l
Solid impurity	Solid impurities size <1mm
Mineralization	Open circle: water mineralization <350mg / l
Corrosivity	Cl-, CO2 and other corrosive substances <100mg / l

Fan Coil Unit

Ceiling Concealed Unit
MCW-C/F/H

Model	MCW200-1200C/F/H
Air Flow	180 -2040m^3/h
ESP	0,30,60,80Pa
Cooling Capacity	2130 -10700W

Air Handling Unit

Single Skin MHW

Model	MHW015A-MHW050A
Air Flow	1500 - 5000m^3/h
ESP	70 - 150Pa
Cooling Capacity	6000 - 87000W

Single Skin MSW

Model	MSW020H-MSW150H
	MSW040V-MSW250V
Air Flow	2000 - 25000m^3/h
ESP	80 - 300Pa
Cooling Capacity	12000 - 450000W

Double Skin MDW

Model	MDW020H-MSW250H
	MDW040V-MSW250V
Air Flow	2000 - 25000m^3/h
ESP	80 - 300Pa
Cooling Capacity	12000 - 450000W

Double Skin MDM

Model	MDM0304-MDM1826
Air Flow	2000 - 100000m^3/h
ESP	80 - 1000Pa
Cooling Capacity	14000 -700000W

Literature No.: CA-MAC D R410A 1101A-50Hz
Supersedes: CA-MAC D R410A 1006-50Hz
Part No.: M08039130019

McQuay® Air Conditioning

ISO 9001
Certificate No. : 9601019

ISO 14001
Certificate No. : EMS 80362

BS - OHSAS 18001
Certificate No. : 7644

CNAS L0778

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Details of specifications and equipment are also subject to change to suit local conditions and requirements and not all models are available in every market.